HISTORIA MATHEMATICA 13 (1986), 311–320

ABSTRACTS

Edited by ALBERT C. LEWIS

The purpose of this department is to give sufficient information about the subject matter of each publication to enable users to decide whether to read it. It is our intention to cover all books, articles, and other materials in the field.

Books for abstracting and eventual review should be sent to this department. Materials should be sent to Dr. Albert C. Lewis, Bertrand Russell Editorial Project, McMaster University, Hamilton, Ontario L8S 4M2, Canada.

Readers are invited to send reprints, autoabstracts, corrections, additions, and notices of publications that have been overlooked. Be sure to include complete bibliograhic information, as well as transliteration and translation for non-European languages. We need volunteers willing to cover one or more journals for this department.

Readers interested in receiving a computer-readable version of the abstracts, beginning with #11.3.1, are invited to write to the Abstracts Editor.

In order to facilitate reference and indexing, entries are given abstract numbers which appear at the end following the symbol #. A triple numbering system is used: the first number indicates the volume, the second the issue number, and the third the sequential number within that issue. For example, the abstracts for Volume 12, Number 1 are numbered: *12.1.1*, 12.1.2, 12.1.3, etc. The abstract numbers of books are italicized.

The initials in parentheses at the end of an entry indicate the abstractor. In this issue there are abstracts by Victor Albis, Albert C. Lewis, and Nobuo Miura.

ABBOTT, C. M. 1978. D. C. Holt: Lightning calculator. *New England Galaxy* **19,** 19–26. D. C. HOLT (1827–1910). (ACL) #13.3.1

ÁLVAREZ, CARLOS. 1985. Gottlob Frege. Cálculo y característica. *Mathesis: Filosofía e Historia de las Matemáticas* (*Mexico*) **1**(2), 129–136. GOTTLOB FREGE, calculus and characteristic. LOGIC. (VA) #13.3.2

ANDERSEN, KIRSTI. 1985. Cavalieri's method of INDIVISIBLES. *Archive for History of Exact Sciences* **31,** 291–367. "I intend to supplement the existing literature on CAVALIERI with a detailed presentation of his method, including its fundamental ideas, the concepts involved in it, its technique of proofs, and its applications. Further, I try to sketch how mathematicians have understood Cavalieri's ideas." (ACL) #13.3.3

AOKI, SEIZÔ. 1980. *Galilei no michi.* Tokyo: Heibonsha. 291 pp. 1700 yen. "The way to Galileo." In Japanese. A collection of essays by Aoki, the late Japanese historian of Galileo. One of them is "GALILEO and the mathematicians." (NM) *#13.3.4*

BECHER, HARVEY W. 1984. The social origins and post-graduate careers of a Cambridge intellectual elite, 1830–1860. *Victorian Studies* **28,** 97–127. The subject is the ten highest wranglers for each year of the study. CAMBRIDGE UNIVERSITY. (ACL) #13.3.5

BELHOSTE, BRUNO. 1984/85. Le cours d'analyse de Cauchy à l'Ecole Polytechnique en seconde année. *Sciences et Techniques en perspective* **9,** 101–178. CAUCHY's analysis course at the Ecole Polytechnique. Appended are documents: the official program of the Ecole for 1828/1829; the detailed syllabus for the second year course; notes on the second year course of 1829/1830 found in the

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archives of SAINT-VENANT (1797–1886) who evidently copied them from notes taken from a student named Zeiller. (ACL) #13.3.6

BENIS-SINACEUR, HOURYA. 1985. La théorie d'Artin et Schreier et l'analyse non-standard d'Abraham Robinson. *Archive for History of Exact Sciences* **34,** 257–264. The theory of ARTIN and SCHREIER, and the NON-STANDARD ANALYSIS of Abraham Robinson. (ACL) #13.3.7

BIERMANN, KURT-R. 1985. Wurde Leonhard Euler durch J. H. Lambert aus Berlin vertrieben? In *Festakt und Wissenschaftliche Konferenz aus Anlass des 200. Todestages von Leonhard Euler,* edited by W. Engel, pp. 91–99. *Abhandlungen der Akademie der Wissenschaften der DDR, Abteilung Mathematik-Naturwissenschaft-Technik* No. 1N. Addresses the question of whether J. H. LAMBERT was the cause of LEONHARD EULER's leaving Berlin in 1766. This appears to have been the unfortunate outcome of what they had earlier jointly proclaimed as the beginning of working together in the common belief that teamwork was more effective than isolated individual research. (ACL) #13.3.8

BOCKSTAELE, P. 1986. La théorie des tangentes aux courbes algébriques dans l'oeuvre de René-François de Sluse. In #13.3.37, pp. 135–144. The theory of tangents to algebraic curves in the work of R.-F. SLUSE. This paper concentrates on the analytic method (as opposed to the "cinematic" method used by Torricelli and Roberval) and makes use of manuscript material. (ACL) #13.3.9

BOOS, WILLIAM. 1985. "The True" in Gottlob Frege's "Über die Grundlagen der Geometrie." *Archive for History of Exact Sciences* **34,** 141–192. Examines the metaphysical and metalogical ramifications of GOTTLOB FREGE's controversy with DAVID HILBERT and ALWIN KORSELT, over Hilbert's *Grundlagen der Geometrie.* (ACL) #13.3.10

BOS, H. J. M. 1984. Arguments on motivation in the rise and decline of a mathematical theory; the "construction of equations," 1637–ca. 1750. *Archive for History of Exact Sciences* **30,** 331–380. "CONSTRUCTION OF EQUATIONS" refers to the geometrical construction of roots (as line segments) of polynomial equations in one unknown. "In the seventeenth century it was considered a crucial technique within analytic geometry, and it was developed by top-ranking mathematicians." (ACL) #13.3.11

BOS, H. J. M. 1986. The significance of SLUSE's *Mesolabum* within seventeenth-century geometry and algebra. In #13.3.37, pp. 145–163. (ACL) #13.3.12

BREITENBERGER, ERNST. 1984. Gauss's geodesy and the axiom of parallels. *Archive for History of Exact Sciences* **31,** 273–289. Supports the view that C. F. GAUSS' geodetic triangulation was not done specifically to determine the angle sum. "The full context of the story, not properly explored before, is replete with detail worthy of note by teachers as well as by historians." (ACL) #13.3.13

BRIGAGLIA, ALDO. 1986. Observations about mathematical problems in the period between Descartes and Newton. In #13.3.37, pp. 205–206. R.-F. SLUSE. (ACL) #13.3.14

BURTON, DAVID M. 1985. *The history of mathematics, an introduction.* Boston/London/Sydney/Toronto: Allyn & Bacon. ix + 678 pp. Illustrated. Hardbound. This TEXTBOOK is primarily addressed to the undergraduate student, with a junior or senior mathematical background, but is also intended to be accessible to the general reader. Though considerable prominence is given to mathematicians' lives, the stress is on the mathematics. The twelve chapters cover selected topics ranging from primitive number systems and symbols to Georg Cantor and the theory of sets. Number theory and non-Euclidean geometry are the topics selected from the nineteenth century, for example. Each chapter has a problem set, with solutions to selected problems in the back of the book, and each has a bibliography of from fifteen to a hundred works in history of mathematics. (ACL) *#13.3.15*

BUTZER, P., AND SCHAFFRATH, A. 1986. Mathematics in BELGIUM from the time of Charlemagne to the seventeenth century. In #13.3.37, pp. 99–134. The mathematical context of R.-F. SLUSE. (ACL) #13.3.16

CARDANO, GIROLAMO. 1980. *Karudano jiden*. Tokyo: Kaimeisha. 354 pp. 1600 yen. "The autobiography of CARDANO." In Japanese. Translation of Cardano *De propria vita* from Latin by T. Kiyose and S. Sawai, with translators' notes. (NM) *#13.3.17*

CHEVALLEY, CLAUDE. 1985. Variaciones del estilo matemático. *Mathesis: Filosofía e Historia de las Matemáticas (Mexico)* **1**(2), 1–9. Spanish translation of "Variations du style mathématique" (Variations of MATHEMATICAL STYLE), *Revue de Métaphysique et Morale* **43**(1935), 275–284. (VA) #13.3.18

COUTURAT, LOUIS. 1985. La filosofía de las matemáticas en Kant. *Mathesis: Filosofía e Historia de las Matemáticas (Mexico)* **1**(1), 79–131. The PHILOSOPHY of mathematics in KANT. (VA) #13.3.19

DAHAN-DALMEDICO, A. 1984/85. La mathématisation des théories de l'élasticité par A. L. Cauchy et les débats dans la physique mathématique française (1800–1840). *Sciences et Techniques en perspective* **9**, 1–100. The mathematization of theories of ELASTICITY by A. L. CAUCHY and the debates on French mathematical physics, 1800–1840. (ACL) #13.3.20

DALE, A. I. 1986. A study of some early investigations into EXCHANGEABILITY. *HM* **12**, 323–336. W. E. JOHNSON, J. HAAG, B. DE FINETTI. (ACL) #13.3.21

DE GANDT, F. 1984/85. Naissance et métamorphose d'une théorie mathématique: la géometrie des indivisibles en Italie (Galilée, Cavalieri, Torricelli). *Sciences et Techniques en perspective* **9**, 179–226. Birth and metamorphosis of a mathematical theory: GEOMETRY OF INDIVISIBLES in Italy. GALILEO. CAVALIERI. TORRICELLI. (ACL) #13.3.22

DOWSHEN, A. G. L. 1981. *A critical analysis of research on problem solving in secondary school mathematics, 1925–1975*. Philadelphia: Temple University. 276 pp. Dissertation. EDUCATION, TEACHING MATHEMATICS. *Dissertation Abstracts International 1981* **42**(2), 585-A. DA 8115936. (ACL) *#13.3.23*

DRUCKER, THOMAS L. 1986. Session on the HISTORY OF LOGIC; 817th meeting of the American Mathematical Society. *HM* **12**, 378–382. (ACL) #13.3.24

DUTKA, JACQUES. 1984. The early history of the HYPERGEOMETRIC FUNCTION. *Archive for History of Exact Sciences* **31**, 15–34. Calls attention "to some of the earlier contributions and of the motivations of the mathematicians who made them." JOHN WALLIS. JAMES STIRLING. LEONHARD EULER. JOHANN FRIEDRICH PFAFF. C. F. GAUSS. (ACL) #13.3.25

ENDÔ, TOSHISADA. 1981. *Zôshû Nihon sûgakushi*. Tokyo: Kôseishakôseikaku. 679 + 189 pp. 15000 yen. "A history of Japanese mathematics, enlarged and revised." In Japanese. Edited by Y. Mikami, revised by A. Hirayama. (NM) *#13.3.26*

ENRIQUES, FEDERICO. 1985. La lógica de los antiguos (Parte I). *Mathesis: Filosofía e Historia de las Matemáticas (Mexico)* **1**(1), 49–77. The logic of the ancients (Part I). Spanish translation. ANCIENT LOGIC. (VA) #13.3.27

FEIGENBAUM, L. 1895. Brook Taylor and the METHOD OF INCREMENTS. *Archive for History of Exact Sciences* **34**, 1–140. A brief biography of BROOK TAYLOR (1685–1731) is followed by a detailed analysis of his *Methodus incrementorum* (1715). (ACL) #13.3.28

FREI, GÜNTHER, editor. 1985. *Der Briefwechsel David Hilbert–Felix Klein (1886–1918)*. Göttingen: Vandenhoeck & Ruprecht. 153 pp. Paperbound. Arbeiten aus der Niedersächsischen Staats- und Universitätsbibliothek Göttingen, Band 19. The editor has added extensive notes and an index to a transcription of the 129 letters between DAVID HILBERT and FELIX KLEIN. The 96 letters up to 1894 provide information about Hilbert's work, especially in invariant theory. When Hilbert came to Göttingen in 1894 the correspondence is sparser and concerns mainly administrative and professional matters. The last several letters concern general relativity theory. (ACL) *#13.3.29*

GARCÍADIEGO, ALEJANDRO R. 1985. La opción: el estudio de la historia y filosofía de las matemáticas en el Departamento de Matemáticas. Facultad de Ciencias UNAM. *Mathesis: Filosofía e Historia de las Matemáticas (Mexico)* **1**(1), 1–19. The curricula of PHILOSOPHY and history of mathematics courses at the Autonomous National UNIVERSITY OF MEXICO are presented and discussed. (VA) #13.3.30

GARCÍADIEGO, ALEJANDRO R. 1986. The emergence of some of the nonlogical PARADOXES of the THEORY OF SETS, 1903–1908. *HM* **12**, 337–351. (ACL) #13.3.31

GÖDEL, KURT. 1986. *Collected works. Volume I: Publications 1929–1936*. Edited by S. Feferman (editor in chief), J. W. Dawson, Jr., S. C. Kleene, G. H. Moore, R. M. Solovay, and J. van Heijenoort. New York: Oxford Univ. Press. Oxford: Clarendon Press. xvi + 474 pp. Illustrated. $35.00. Beginning with his dissertation this volume contains all Gödel's publications of the period. Included also is a biographical essay by Feferman, historical notes, family photographs, and English translations on pages facing the German original. (ACL) *#13.3.32*

GRATTAN-GUINNESS, I. 1985. On the influence of Euler's mathematics in France during the period 1795–1825. In *Festakt und Wissenschaftliche Konferenz aus Anlass des 200. Todestages von Leonhard Euler*, edited by W. Engel, pp. 100–111. *Abhandlungen der Akademie der Wissenschaften der DDR, Abteilung Mathematik-Naturwissenschaft-Technik* No. 1N. Concentrates on general principles of LEONHARD EULER's mathematics seen in French calculus and mechanics. Intends to pose historical questions rather than provide definitive answers, since "although the period is 'well-known', it is not well-studied." (ACL) #13.3.33

GRAY, J. D. 1984. The shaping of the RIESZ REPRESENTATION THEOREM: a chapter in the history of analysis. *Archive for History of Exact Sciences* **31**, 127–187. The pre-history of the theorem, from V. VOLTERRA's heuristic conception in 1880 to its publication in 1909, is explored. "The philosophical background that governed the contemporaneous patterns of mathematical thought has more relevance to the pre-formal beginnings of the theorem than does mathematics *per se*." (ACL) #13.3.34

GUERRAGGIO, ANGELO. 1984. Le memorie di Volterra e Peano sul movimento dei poli. *Archive for History of Exact Sciences* **31**, 97–126. V. VOLTERRA and G. PEANO on the motion of the TERRESTRIAL POLES. (ACL) #13.3.35

GUPTA, R. C. 1986. History of mathematics at the Indian Science Congress—1985. *HM* **12**, 375–378. (ACL) #13.3.36

HALLEUX, ROBERT, editor. 1986. "René-François de Sluse" (1622–1685). Actes du Colloque International, Amay-Liège-Vise, 20–22 mars 1985. *Bulletin de la Société Royale des Sciences de Liège, 55e année I* **1**, 1–269. Papers given at the colloquium devoted to R.-F. SLUSE. Those relating to mathematics are abstracted separately under the authors Bockstaele, Bos, Brigaglia, Butzer, Knobloch, and Taton. Other papers relate Sluse to Liège, Europe, Cartesianism, linguistics, and his historical work. (ACL) #13.3.37

HARTZLER, STANLEY J. 1982. *Secondary algebra* TEXTBOOKS *in the United States 1806–1982: Selected descriptions and historical trends*. Austin: University of Texas. 204 pp. Dissertation. *Dissertation Abstracts International 1983* **43**(7), 2265-A. DA 8227661. (ACL) *#13.3.38*

HAYDEN, ROBERT W. 1981. *A history of the "New Math" movement in the* UNITED STATES. Ames: Iowa State University, 1981. 278 pp. EDUCATION, TEACHING MATHEMATICS. Dissertation. *Dissertation Abstracts International 1982* **42**(11), 4753-A. DA 8209127. (ACL) *#13.3.39*

HEIDEMAN, M. T., JOHNSON, D. H., AND BURRUS, C. SIDNEY. 1985. GAUSS and the history of the FAST FOURIER TRANSFORM. *Archive for History of Exact Sciences* **34**, 265–277. (ACL) #13.3.40

HENDLEY, BRIAN P. 1986. *Dewey, Russell, Whitehead: Philosophers as educators*. Carbondale/Edwardsville: Southern Illinois Univ. Press. xxi + 178 pp. Hardbound. Dewey and the laboratory

school, Russell and the Beacon Hill school, and Whitehead and the rhythm of education. Includes TEACHING OF MATHEMATICS. (ACL) *#13.3.41*

HOGENDIJK, JAN P. 1984. GREEK and ARABIC constructions of the REGULAR HEPTAGON. *Archive for History of Exact Sciences* **30,** 197–300. Appended are editions of the Arabic texts and English translations of Propositions 17 and 18 of the "Book on the Construction of the Circle, Divided into Seven Equal Parts," attributed to ARCHIMEDES, and of the "Book on the Construction of the Heptagon in the Circle and the Division of the Rectilineal Angle into Three Equal Parts" by the tenth century geometer AL-SIKZI. (ACL) #13.3.42

ITAKURA, KIYONOBU, AND NAKAMURA, KUNIMITSU. 1981. On the density of metals and water in Japan (from 1660 onward)—Stagnation and decline in efforts of improving the value of densities. *Kagakusi Kenkyu* **20,** 83–94. In Japanese. The authors conclude that from 1660 to the end of the Edo Period the density in tables in the *wasan* retrogressed rather than became retarded. (NM) #13.3.43

ITAKURA, KIYONOBU, AND NAKAMURA, KUNIMITSU. 1982. The value of PI in the Edo Period. *Kagakusi Kenkyu* **21,** 142–152. In Japanese. The authors conclude that the knowledge of the value of pi on the part of people who had read bulky books containing general remarks (300–500 pages) had been different from that of the general public in the Edo Period. (NM) #13.3.44

ITÔ, SHUNTARÔ. 1980. *Roger Bacon*. Tokyo: Asahi Shuppan. 494 pp. In Japanese. This consists of a quite long introduction (the life and ideas of ROGER BACON) by K. Takahashi, and Japanese translation of a part of the *Opus maius* of Bacon. "The usefulness of mathematics" is included. (NM) *#13.3.45*

ITÔ, SHUNTARÔ. 1980. INFINITE AND FINITE in mathematics: From Greek to Cantor. In *Mugen to yûgen (Infinite and finite)*, edited by K. Takeuchi, pp. 71–101. Tokyo: Daigaku Shuppankai. Historical sketch of the subject in Japanese. (NM) #13.3.46

ITÔ, SHUNTARÔ. 1981. New aspect of the twelfth-century Renaissance in Sicily. In *Kagaku to tetsugaku no kaimen (The tangency between mathematics and philosophy)*, edited by S. Ômori et al., pp. 73–94. Tokyo: Asahi Shuppan. In Japanese. The author supposes that EUCLID's *Elements* and *Data* were translated from Greek into Latin by the same scholar in TWELFTH-CENTURY SICILY. The author is not satisfied with the reasoning given by J. E. Murdoch who thinks that the two books were translated by two different scholars. (NM) #13.3.47

JERVIS, JANE L. 1985. *Cometary theory in fifteenth-century Europe*. Dordrecht/Boston/Lancaster: Reidel. 209 pp. Illustrated. $39.00. £ 27.95. Analyses selected treatises with attention to observations and their use in the elaboration of COMETARY THEORY. JACOBUS ANGELUS. PAOLO TOSCANELLI. GEORG PEURBACH. JOHANNES REGIOMANTUS. (ACL) *#13.3.48*

KAC, MARK. 1985. *Enigmas of chance, an autobiography*. New York: Harper & Row. xxvii + 163 pp. Hardbound $18.95. Paperbound, no price available. Alfred P. Sloan Foundation series. Kac describes his background in Poland, his teacher HUGO STEINHAUS, and his work as one of the founders of PROBABILITY THEORY. Included are LEON CHWISTEK, CORNELL UNIVERSITY, UNIVERSITY OF LWOW, E. R. VAN KAMPEN, and ROCKEFELLER UNIVERSITY. (ACL) *#13.3.49*

KENNEDY, J. W., QUINTAS, L. V., AND SYSŁO, M. M. 1986. Theorem on PLANAR GRAPHS. *HM* 12, 356–368. KURATOWSKI THEOREM. (ACL) #13.3.50

KING, MITCHELL C. 1976. JAMES W. NICHOLSON: Claiborne parish mathematician. *North Louisiana Historical Association Journal* **8,** 31–36. Nicholson (1844–1917) taught in Homer College from 1865 until going to LOUISIANA STATE UNIVERSITY in 1876 where he became chairman of the mathematics department and twice served as president. (ACL) #13.3.51

KNOBLOCH, E. 1986. Sur quelques études mathématiques et physiques de Sluse. In #13.3.37, pp. 165–189. On several mathematical and physical studies of SLUSE. (ACL) #13.3.52

KÖRNER, STEPHAN. 1985. La matemática gödeliana y sus implicaciones filosóficas. *Mathesis: Filosofía e Historia de las Matemáticas (Mexico)* **11**(2), 11–35. GÖDEL's mathematics and its philosophical implications. (VA) #13.3.53

KONDO, MOTOKICHI, AND IZEKI, KIYOSHI. 1982. *Kindaisûgaku jô*. Tokyo: Nihon Hyôronsha. 348 pp. "The early modern mathematics I." In Japanese. This volume deals with EIGHTEENTH- AND NINETEENTH-CENTURY MATHEMATICS, especially geometry and algebra. (NM) *#13.3.54*

LAKATOS, IMRE. 1980. *Sûgakuteki hakken no ronri*. Tokyo: Kyôritsu Shuppan. 219 pp. 2000 yen. Japanese translation of *Proofs and refutations*, by C. Sasaki. (NM) *#13.3.55*

LEONARD, DAVID C. 1981. Harvard's first science professor: A sketch of ISAAC GREENWOOD's life and work. *Harvard Library Bulletin* **29**, 135–168. Greenwood (1702–1745), an influential deist, became, at the age of 25, professor of mathematics and philosophy at HARVARD UNIVERSITY. (ACL) #13.3.56

LOBACHEVSKII, N. I. 1985. Pangeometría o compendio de geometría fundada sobre una teoría general y rigurosa de las paralelas. *Mathesis: Filosofía e Historia de las Matemáticas (Mexico)* **1**(2), 37–53. Spanish translation of Lobachevskii's *Pangéométrie*. NON-EUCLIDEAN GEOMETRY. (VA) #13.3.57

MAC LANE, SAUNDERS. 1986. *Mathematics, form and function*. New York/Berlin/Heidelberg/Tokyo: Springer-Verlag. xi + 476 pp. Illustrated. Hardbound $42.00. From the author's preface: "This book records my efforts over the past four years to capture in words a description of the form and function of Mathematics, as a background for the PHILOSOPHY OF MATHEMATICS." From the introduction: "This book is intended to describe the practical and conceptual origins of Mathematics and the character of its development—not in historical terms, but in intrinsic terms." (ACL) *#13.3.58*

MATHEWS, JEROLD. 1985. A neolithic oral tradition for the van der Waerden/Seidenberg origin of mathematics. *Archive for History of Exact Sciences* **34**, 193–220. Proposes a basic core of geometry for the common source of Indian, Babylonian, Greek, and Chinese mathematics and relates it to the CHIU CHANG. (ACL) #13.3.59

MURATA, TAMOTSU. 1981. *Nihon no sûgaku seiyô no sûgaku*. Tokyo: Chûôkôronsha. 229 pp. 460 yen. "JAPANESE MATHEMATICS and European mathematics." In Japanese. In this comparative study on the history of mathematics the author treats Japanese mathematics (called the *wasan*) and European (Archimedes, Wallis, etc.), as well as mathematical thoughts behind them. (NM) *#13.3.60*

MURATA, TAMOTSU. 1980. INFINITE AND FINITE in mathematics: from Cantor to Cohen. In *Mugen to yûgen (Infinite and finite)*, edited by K. Takeuchi, pp. 103–149. Historical sketch of the subject in Japanese. (NM) #13.3.61

NAGAOKA, KAZUO. 1982. On the theory of probability of C. HUYGENS. *Kagakusi Kenkyu* **21**, 88–97. In Japanese. Study of Huygen's *De ratiociniis in ludo aleae*. (NM) #13.3.62

NAKAMURA, KÔSHIRÔ. 1980. *Kinsesûgaku no rekishi*. Tokyo: Nihon Hyôronsha. 270 pp. 3700 yen. "A history of early modern mathematics." The book deals with the origin of CALCULUS and its development. K. Nakamura, a famous Japanese historian of mathematics, gives us a detailed interpretation of Newton and Leibniz, based upon original texts. (NM) *#13.3.63*

NAKAMURA, KÔSHIRÔ. 1981. *Sûgakushi*. Tokyo: Kyôritsu Shuppan. 233 pp. 1800 yen. "History of mathematics." In Japanese. The book consists of three parts. The first treats Euclid's *Elements*, Descartes, Pascal, and Port Royal. The second concerns mathematical notation. The author studies the relation between notation and logical process in Diophantus, Viète, Fermat, Descartes, and Leibniz. The last part is on the mathematical infinite and the concept of function. The book is based upon the original texts. (NM) *#13.3.64*

NORTH, J. D., AND ROCHE, J. J., editors. 1985. *The light of nature: Essays in the history and philosophy of science presented to A. C. Crombie.* Dordrecht/Boston/Lancaster: Martinus Nijhoff. viii + 471 pp. Illustrated. Hardbound $75.00. The essay by M. J. Petry is abstracted separately. A bibliography of A. C. CROMBIE is appended. (ACL) *#13.3.65*

ÔYA, SHIN'ICHI. 1980. *Wasa izen.* Tokyo: Chûôkôronsha. 250 pp. Paperbound 420 yen. "Before *wasan*." In Japanese. S. Ôya, an authority on the history of Japanese mathematics, covers from the beginning of Japanese mathematics up to the *Jingôki,* a seminal book on the *wasan* tradition. (NM) *#13.3.66*

PALLADINO, FRANCO. 1985. Individuo e classe: l'origine e il significato di "ε" nel simbolismo di Peano. *Archive for History of Exact Sciences* **34,** 241–256. Individual and class: The origin and significance of the EPSILON in PEANO'S LOGICAL SYMBOLISM. (ACL) #13.3.67

PAPPUS OF ALEXANDRIA. 1986. *Book 7 of the 'Collection'.* New York/Berlin/Heidelberg/Tokyo: Springer-Verlag. 2 parts in 2 volumes. Illustrated. Hardbound $98.00. Sources in the History of Mathematics and Physical Sciences, 8. Edited with translation and commentary by Alexander Jones. Part 1: Introduction, text, and translation. Part 2: Commentary, index, and figures. This is a revision of the author's 1985 doctoral dissertation at Brown University. "Pappus of Alexandria is the first author in [the later Hellenistic period] of whom we have substantial writings on higher geometry, and—for the modern historian—he is also the most important." (ACL) *#13.3.68*

PEIRCE, CHARLES S. 1986. *Writings of Charles S. Peirce: A chronological edition. Volume 3: 1872–1878.* Edited by C. J. W. Kloesel *et al.* Bloomington: Indiana Univ. Press. xxxvii + 633 pp. Illustrated. $40.00. During the years covered by this volume Peirce was involved with the U.S. Coast Survey and the first signs of pragmatism appeared. The papers include such topics as logic, linear associative algebra, and observational error. (ACL) *#13.3.69*

PETRY, M. J. 1985. Hemsterhuis on mathematics and optics. In *#13.3.65,* pp. 209–234. FRANS HEMSTERHUIS (1721–1790). GOETHE. (ACL) #13.3.70

PUTNAM, HILARY. 1985. Mentes y máquinas. *Mathesis: Filosofía e Historia de las Matemáticas (Mexico)* **1**(2), 55–83. Spanish translation of the paper "Minds and machines" in *Dimensions of mind: A symposium* (New York Univ. Press, 1960). (VA) #13.3.71

PYCIOR, HELENA. 1984. At the intersection of mathematics and humor: LEWIS CARROLL'S *Alice* and symbolical algebra. *Victorian Studies* **28,** 149–170. (ACL) #13.3.72

RAMÍREZ, SANTIAGO. 1985. La obra de Jean Cavaillés. *Mathesis: Filosofía e Historia de las Matemáticas (Mexico)* **1**(1), 149–158. The work of JEAN CAVAILLÉS. A bibliographic essay. (VA) #13.3.73

REICH, KARIN. 1985. Aurel Voss: Verschiedenes zu seinem Leben und Werk. In *Mathemata, Festschrift für Helmuth Gericke,* edited by Folkerts and Lindgren, pp. 674–699. Wiesbaden: Steiner. Corrects Poggendorff and other references on AUREL Voss (1845–1931), providing a complete bibliography, list of lectures, and portrait. (ACL) #13.3.74

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